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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|-------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/796,299 | Applicant(s) SHINGLETON ET AL. | |
| | Examiner Asha Hall | Art Unit 1753 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 31-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 31-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>July 10, 2007</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements filed on July 10, 2007, with a patent references with a line through were already submitted by the Examiner on April 10, 2007.

Claim Rejections - 35 USC § 112

2. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In the amended portion of claim 1 explaining that the supplemental panels other than PV panel provide a feature other than "electricity generation" is not disclosed in the specification.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 31 is rejected under 35 U.S.C. 102(b) as being anticipated by Roderick et al. (US 4,233,085).

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As to claim 31, Roderick et al. disclose a photovoltaic assembly (solar panel module 10) comprising: a mounting structure/frame (50); a PV module (20); having upper and lower surfaces (Figure 1), supported by the mounting structure. Roderick et al. further discloses a protective panel (67) mounted to at least one of the mounting structure (50) and the PV module (20) opposite and covering substantially the entire the lower surface of the PV module (Figures 3 & 4); covering the lower surface (including the entire surface) of the PV modules (20) with the protective panels/insulating panels (67) comprising of a sheet of material/asphalt/tar (col. 7; lines: 3-13).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 1, 2, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US 4,233,085) in view of Brown et al. (5,885,367).

As to claim 1, Roderick et al. disclose a modular shade system based on a solar panel module (solar panel module, 10) in Figure 1 that comprises: a support structure (frame, 14) defining a first area having a length and a width (i.e., the area encompassed by 14) and modular panels (solar units, 20) that are fixed to the units in ways described in column 4 lines 40-49 (specifically

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excluding "rigid clamping", column 4, line 34) that are sufficiently flexible to permit removal and/or replacement in modular fashion. Each of said kinds of modular unit has an upper and lower surface, mounted to and supported by the support structure (as illustrated in Figure 1), said modular panels (solar units, 20) covering at least about 80% of the first area (in Figure 1, a real coverage is greater than 90 %), the upper surfaces of the modular panels being exposed surfaces (as shown, the upper surfaces are exposed to incident sunlight, 12). Further, the modular panels (solar units, 20) comprise PV panels and supplemental panels (20 and their supplements); However, Roderick fails to disclose that the supplemental panels being other than PV panels, to provide a feature other than electricity generation and optionally providing shading.

Brown et al. discloses thin film solar cells (12) as shown in Figure 1 (col. 2; lines: 3-8), and further discloses a flexible reflector panels (14) configured along the edges of the solar panel so to direct the reflected sunlight onto the solar panel (col.2; lines: 8-14). Brown et al. also teaches that the reflector panels function similar to a window shade (col.3; lines: 11-14). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate supplemental reflector side panels as taught by Brown et al. to the photovoltaic panels of modified Roderick et al. in order to function similar to a window shade to direct the reflected sunlight onto the solar panel.

As to claim 2, the system the support structure of Roderick et al. shown in Figure 1 (frame, 14) comprises: a series of generally parallel purlins/horizontal timbers (parallel wood strips, 16); beams (18) oriented transversely to said purlins (wood strips

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16). Roderick further discloses generally vertical column/cross members (60,70) as shown in Figure 4 secured to and supporting each beam (64,78).

As to claim 8, modified Roderick et al. disclosed the shading system subassembly as applied to claim 1 above, and further discloses covering the lower surface of the PV modules (20) with the protective panels/insulating panels (67) comprising of a sheet of material/asphalt/tar (col. 7; lines: 3-13).

7. Claims 3-7, 10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US 4,233,085) and Brown et al. (US 5,885,367) as applied to claims 1 and 8 above, in view of Berman et al. (US 4,663,085).

As to claims 3-7, Roderick et al. disclose all the features of claim 1 above, but fail to teach that the supplemental panels comprise light- transmissive panels, cover about 0 to 50% or 5 to 30 % of the first area, are placed adjacent to one another along a path parallel to the length, comprise light transmissive PV panels, and the PV panels are light-transmissive panels cover at least about 90% of the first area.

Berman et al. disclose a light-transmissive solar panel in Figure 1 (transparent photovoltaic panel,10) which may be used on a roof-top (see Figure 7) to provide transmitted light that is not used for photovoltaic conversion for other purposes such as illuminating the interior of a dwelling (abstract, last sentence). Further, the PV panels of Berman et al. (transparent photovoltaic panel, 10) are light-transmissive PV panels. It would have been obvious to one of

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ordinary skill in the art at the time of the invention to provide the light-transmissive solar panel of Berman et al. to the modular shade system of Roderick et al. in order to provide light for non-photovoltaic purposes such as illuminating the interior of a dwelling.

Further, one of ordinary skill in the art would use the appropriate fraction of light-transmissive PV panels of Berman et al. to provide the desired level of illumination to the interior of a dwelling. This includes, but is not limited to, using light-transmissive PV panels to cover 0 to 50 % or 5 to 30 % of the first area defined by the support structure of Roderick et al. in the context of claim 1 above. Finally, one of ordinary skill in the art would also place the light-transmissive PV panels of Berman et al. as needed including placing them adjacent to one another along a path parallel to the length or to cover up to 90 % of the first area defined by the support structure of Roderick et al. in the context of claim 1 above again in order to provide the desired level of illumination to the interior of a dwelling.

As to claim 10, Roderick et al. discloses all the features of claim 8, and also the protective panels that have holes between the rib stiffeners (20) that permit some light to pass through as shown in Figure 1. Roderick et al. fails to disclose that the PV modules are constructed to permit some light to pass therethrough.

Berman et al. disclose a light-transmissive solar panel in Figure 1 (transparent photovoltaic panel, 10) which may be used on a roof-top (see Figure

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7) to provide transmitted light that is not used for photovoltaic conversion for other purposes such as illuminating the interior of a dwelling (abstract, last sentence). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the light-transmissive solar panel of Berman et al. to the photovoltaic module of Roderick et al. in order to provide light for non-photovoltaic purposes such as illuminating the interior of a dwelling.

As to claim 13, Roderick et al. discloses all the features of claim 8, and also the protective panels al. have holes between the rib stiffeners (20) that permit some light to pass through as shown in Figure 1. Roderick et al. fails to disclose that the PV modules cover at least about 90% of the first area.

Berman et al. disclose a light-transmissive solar panel in Figure 1 (transparent photovoltaic panel, 10) which may be used on a roof-top (see Figure 7) to provide transmitted light that is not used for photovoltaic conversion for other purposes such as illuminating the interior of a dwelling (abstract, last sentence). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the light-transmissive solar panel of Berman et al. to the photovoltaic module of Roderick et al. in order to provide light for non-photovoltaic purposes such as illuminating the interior of a dwelling. One of ordinary skill in the art would use the appropriate fraction of light transmissive solar panels of Berman et al. in order to provide the desired level of illumination to the interior of a dwelling. This includes, but is not limited to, using light-transmissive solar panels to cover up to 90 %

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of the first area defined by the support structure of Roderick et al. in the context of claim 1 above.

8. Claims 9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US Patent 4,233,085) and Brown et al. (US 5,885,367) as applied to the claim 8 above, in view of Catella et al. (US 4,611,090).

In regard to claims 9 and 12, modified Roderick et al. disclose the photovoltaic panels of claim 1 above, but fail to disclose the protective cover comprising of sheet metal, perforated sheet metal, plastic, perforated, plastic, cement board, perforated cement board, and phosphorescent material.

Catella et al. discloses photovoltaic module assembly (Figure 1) and further explains that the semi-rigid support member (10) and the protective panel that forms a part of it may be composed of steel, aluminum, plastic (polycarbonate) as to have support and high strength to the structure (column 4, lines: 18-28). Catella et al. also discloses that the protective panels are perforated in the sense that they contain a total of nine holes (see Figure 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the protective panels composed of materials such as steel, aluminum, and plastic (polycarbonate) as taught by Catella et al. to the photovoltaic module assembly of modified Roderick et al. in order to serve as a support and high strength structure.

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9. Claims 32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US 4,233,085) as applied to claim 31 above, and in view of Catella et al. (US 4,611,090).

With respect to claim 32, Roderick et al. discloses thin film solar cells (12) as shown in Figure 1 (col. 2; lines: 3-8), but fails to disclose a solar cell explain that the semi-rigid support member and the protective panel that is a part of it may be composed of steel, aluminum, plastic (polycarbonate).

Catella et al. discloses photovoltaic module frame (Figure 1) and further explain that the semi-rigid support member (10) and the protective panel that is a part of it may be composed of steel, aluminum, plastic (polycarbonate) which has high material strength (column 4, lines 18-28). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a semi-rigid support member as taught by Catella et al. to the photovoltaic thin film solar cell of Roderick in order to supply high material strength.

In regard to claim 35, Roderick et al. discloses thin film solar cells (12) as shown in Figure 1 (col. 2; lines: 3-8), but fails to disclose the protective panels are perforated in the sense that they contain a total of nine holes.

Catella et al. discloses photovoltaic module frame (Figure 1) and further discloses the protective panels of Catella et al. are perforated in the sense that they contain a total of nine holes (see Figure 1). Catella et al. teaches that each interconnected semi-rigid support member is secured to an adjacent support member

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with bolts through holes in thickened portion of the skirt (col.8; lines: 40-43). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate protective panels with holes as taught by Catella et al. to the photovoltaic thin film solar cell of Roderick et al. in order to secure the adjacent support member.

10. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US 4,233,085) and as applied to claim 31 above, and in view of Berman et al. (US 4,663,085).

As to claim 33, Roderick et al. as applied to claim 31 above discloses all the features of 31, and further provides that the protective panels have holes between the rib stiffeners (20) that permit some light to pass through. Roderick et al. fails to provide is that the PV modules are constructed to permit some light to pass therethrough.

Berman et al. disclose a light-transmissive solar panel in Figure 1 (transparent photovoltaic panel, 10) which may be used on a roof-top (see Figure 7) to provide transmitted light that is not used for photovoltaic conversion for other purposes such as illuminating the interior of a dwelling (abstract, last sentence). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the light-transmissive solar panel of Berman et al. to the photovoltaic thin film of Roderick et al. in order to provide light for non-photovoltaic purposes such as illuminating the interior of a dwelling.

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11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US Patent 4,233,085) and Brown et al. (US 5,885,367) as applied to claim 1 above, in view of Blieden et al. (US patent 4,153,813).

With respect to claim 14, modified Roderick et al. discloses all the features of claim 1 above but fail to teach that the supplemental panels comprise phosphorescent panels to provide passive nighttime illumination or that the supplemental panels comprise illuminated panels.

Blieden et al. disclose a luminescent member (16) which consists of a luminescent agent capable of phosphorescence (column 1, line 33-34) that is optically coupled to a photovoltaic cell (18) in Figure 3. Blieden et al. explain that the purpose of said luminescent member is to aid in the collection of low angle incident light (column 1, lines 57-61). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the luminescent member of Berman et al. to the modular shade system of modified Roderick et al. in order to aid in the collection of low angle incident light. Doing so would automatically provide passive nighttime illumination beneath the support structure of Roderick et al. Finally, panels in said combination of the devices of Roderick et al. and Blieden et al. are illuminated by virtue of their inclusion of the luminescent member.

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12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US Patent 4,233,085) and Brown et al. (US 5,885,367) as applied to claim 1 above, in view of McDonough et al. (US Patent 6,606,823).

As to claim 15, modified Roderick et al. disclose all the features of claim 1 above but fail to teach that the supplemental panels comprise planter panels for planting of plants.

McDonough et al. disclose a modular roof covering system (Figures 1 - 4) that provides a light weight and low cost roof covering that in order to extend the longevity of the environment, manage store water runoff and collect and utilize solar energy (column 1, lines 39-45). McDonough et al. teach that these modules can be used as planter panels for the planting of plants (Figure 2, and instructions regarding planting "vegetation" in the module in column 5, lines 35-41). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the modules of McDonough et al. (Figure 2) as supplemental panels in the modular shade system of Roderick et al. in order to extend the longevity of the environment.

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US Patent 4,233,085) and Brown et al. (US 5,885,367); as applied to claims 8 above, and in further view of Nath et al. (US patent 5,968,287).

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With regard to claim 11, the combination of Roderick et al. discloses all the features of claims 8, but fails to disclose that the protective panels lower protective panel surface, at least substantially the entire lower protective panel surface being convex.

Nath discloses a photovoltaic (PV) cell module building panels (Figure 1) (col.1; lines: 6-9) and further discloses an architectural/protective panel (14) that includes a convex central portion onto which a photovoltaic device is to be attached (Figure 1)(since the entire portion is underneath the PV device, this includes the lower portion) which makes the use of (col.1; lines: 59-61), Nath further teaches that the preformed architectural/protective panels (14) would be advantageous since it utilizes minimal hardware and can be utilized for standing building structures (col.2; lines: 43-47). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a convex protective panel as taught by Nath to the PV panels of modified Roderick et al. in order to utilize minimal hardware and can be utilized for standing building structures.

14. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Roderick et al. (US 4,233,085), as applied to claims 31 above, and in further view of Nath et al. (US 5,968,287).

With regard to claim 34, the combination of Roderick et al. discloses all the features of claims 31 respectively, but fails to disclose that the protective panels lower

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protective panel surface, at least substantially the entire lower protective panel surface being convex.

Nath discloses a photovoltaic (PV) cell module building panels (Figure 1) (col.1; lines: 6-9) and further discloses an architectural/protective panel (14) that includes a convex central portion onto which a photovoltaic device is to be attached (Figure 1)(since the entire portion is underneath the PV device, this includes the lower portion) which makes the use of (col.1; lines: 59-61), Nath further teaches that the preformed architectural/protective panels (14) would be advantageous since it utilizes minimal hardware and can be utilized for standing building structures (col.2; lines: 43-47). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a convex protective panel as taught by Nath to the PV panels of modified Roderick et al. in order to utilize minimal hardware and can be utilized for standing building structures.

Response To Applicant's Arguments

Drawings

15. Due to the cancellations of claims 16-30, the objection to the drawings has been withdrawn.

Claim Rejection under 35 U.S.C. § 112

16. Due to the cancellations of claims 16-30, the 35 U.S.C. § 112 rejection of claims 19-30 has been withdrawn.

Claim Rejection under 35 U.S.C. § 103

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17. All arguments are directed toward the claims 1, and dependants 2, 6, 8, 9, 11, 31, 32, and 34 as amended. Such amendments require new grounds of rejection presented above.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Asha Hall whose telephone number is 571-272-9812. The examiner can normally be reached on Monday-Thursday 8:30-7:00PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AJH



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SUPERVISORY PATENT EXAMINER